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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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DISEASES of the NERVOUS SYSTEM

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A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

*Cryptococcus (Torula) Meningitis**

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Cryptococcosis, torulosis, or European blastomycosis was likely the first human systemic disease due to true molds to be described. Zenker[1] in 1861 found a budding fungus in the brain of a man who died after an illness marked by severe headache and hemiplegia. If this is not acceptable as the first described case then that of Busse[2] in 1894 must be, since the causative organism was preserved and was identified in 1934 by Benham[3] as what we now know as Cryptococcus hominis.

Cryptococcosis seems less understood and less often recognized nowadays than are some of the related fungal diseases, such as blastomycosis and coccidioidomycosis.

The organism has been given a variety of names. The name, Cryptococcus hominis, was proposed in 1901.[3] The name torula was given to an organism isolated from a pulmonary lesion in a horse in 1902. Stoddard and Cutler[4] in their monograph in 1916 applied the term torula histolytica. They studied two cases, erroneously considered to have brain tumors, and proposed the specific term histolytica because of the clear zone about the organisms in tissue sections, now known to be due to its capsule. Todd and Herrmann[5] in 1936 described the production of ascospores and suggested the name Debaryomyces neoformans. Cox and Tolhurst[6] have recently reported the presence of hyphae in cultures. At present, since the exact taxonomic position of the organism is unsettled, Cryptococcus hominis has preference by reason of priority.

The cryptococcus is at present grouped along with monilia, blastomyces, coccidioidomyces, and histoplasma under fungi imperfecti, a group of organisms lacking a sexual phase in their life cycles.

Cryptococci very similar to Cryptococcus hominis are widespread in nature. One found on peach skin, for example, differs from the human pathogen only in the ability of the latter to grow at 37° C. and to produce disease in mice. Cryptococcus hominis averages about 7 microns in diameter and is characterized by its heavy gelatinous capsule. Reproduction in both tissues and culture is by budding. In tissues, however, budding organisms are infrequently seen, an important point of distinction from blastomyces. Endospores are not formed, an important point of differentiation from coccidioides. From the standpoint of the ante-mortem diagnosis of cryptococcosis, especially in examination of cerebrospinal fluid, the greatest chance of error lies in mistaking the organisms for erythrocytes or lymphocytes.

In Table 1 are shown the outstanding characteristics of Cryptococcus hominis compared with those of the principal fungi from which it must be distinguished. The organism grows well on ordinary culture media such as blood agar or Sabouraud's medium. The growth rate is variable; some strains may show visible colonies within one day, while others may not appear for one or two weeks. Some strains are weak carbohydrate fermenters, but acid alone and no gas is produced,

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an important point of differentiation from contaminating yeasts.

Approximately one hundred cases of human cryptococcosis have been reported from Europe, North and South America, the East Indies, Japan, and Australia. Most of these reports have come from the United States, but upon the basis of population, Australia seems to have by far the largest incidence of the disease. In that country, since 1936, Cox and Tolhurst[6] have encountered eleven cases during which time they saw thirty-five cases of tuberculous meningitis. Altogether these authors have seen thirteen cases. Cox and Tolhurst state that eight other cases from Australia have been reported by others and about a dozen unreported cases have been seen, making a total of about thirty-three cases from that country alone. To our knowledge two cases have been reported from Texas, the first by Caldwell[7] of Dallas in 1937 and the second by Owen[8] of Fort Worth in 1940. We wish to report another case occurring in Texas.

Case Report

Mrs. B. B. R., a 33 year old white woman, divorced, employed as cook in a cafe for one year prior to admission, had lived all her life in Texas. She was first seen on July 25, 1946, with complaints of headache of eleven days and vomiting of eight days duration. During the winter of 1945-46 she had been ill with an infection diagnosed simply as "pneumonia" from which she had made an uneventful recovery. A day or so after the onset of the vomiting she had been studied elsewhere and all examinations, including a spinal puncture, were said to have been negative.

The patient was moderately obese, lethargic, uncooperative and apparently in considerable pain. Her temperature was 100.2° F. Physical findings were negative except for pronounced hypersensitivity to pin prick and to contact with a vibrating tuning fork. She withdrew excessively from both of these stimuli and cried out as though in pain.

Urinalysis was negative except for a trace of albumin. The blood hemoglobin was 12.5 gm. and the leucocyte count was 14,000 with a differential count of 68 neutrophiles, 26 lymphocytes, 2 monocytes, and 4 eosinophiles. The blood sedimentation rate (Westergren) was 36 mm. in one hour. A Kline test on the blood was negative and x-rays of the chest and skull were normal.

A spinal puncture done on the second day after admission showed an initial pressure of 8 cm. of fluid, dropping to 6.5 cm. after the withdrawal of 10 cc. of clear, colorless fluid. Laboratory examination of this fluid showed 110 mgm. total protein, a cell count of 238, with 97 per cent lymphocytes, a negative serologic reaction, and a gold curve of 0012222100. No organisms were found. Two days later fluid from a second spinal puncture was essentially the same except that 200 "red cells" were reported and a pellicle developed in the fluid upon standing. No organisms were found in the pellicle or centrifuged sediment from the fluid. A guinea pig inoculated with this fluid died one month later, without evidence of abnormality at autopsy.

After the spinal punctures the patient stopped vomiting and seemed to be more comfortable but a day or so later vomiting again developed. A third spinal puncture on August 1, 1946 gave no additional information. Another puncture on August 9, 1946 (26 days after onset of headache) yielded a pressure of 15 cm. The cell count was 179, with 92 per cent lymphocytes and an occasional yeast-like organism, suggestive of cryptococcus was found. Culture of this fluid showed, within 72 hours, small pasty colonies of an organism which on further study was identified as Cryptococcus hominis.

On August 10, 1946 the patient developed a horizontal nystagmus followed shortly by a mild Kernig's sign. Death occurred on August 26, 1946

TABLE I—DIFFERENTIATION OF FUNGI

	Torula	*Monilia*	*Blastomyces*	*Coccidioides*
In Tissue: Reaction	usually lymphocytic	lymphocytic	polymorphic	polymorphic
Budding	may be observed	yes, also hyphae	always	never
Endospores	never	never	never	always
Capsule	mucoid	no	no	no
In Culture: Colonies	moist	moist at first	fuzzy	fuzzy
Mycelia	never	after a week or more	yes	yes
Animals susceptible	mice, rats	rabbits	none	all animals

after a steadily downhill course. Death was immediately preceded by a sudden rise in the pulse rate to 160 and a drop in the respiratory rate to 2 per minute. Temperature readings were never above 101° F. and the last reading before death was 99° F.

Therapy consisted in large doses of penicillin and sulfadiazine with parenteral administration of adequate amounts of fluid and electrolytes. At no time was any favorable response noted except for the relief obtained from spinal puncture.

An autopsy performed 8 hours after death revealed the brain to be hyperemic with flattening of the convolutions. There was slight thickening of the leptomeninges but no free exudate was seen. The ventricular system was moderately dilated throughout. Several small areas of softening were scattered about in the cortex. In the left caudate nucleus there was a 2 cm. area of softening and a similar smaller lesion was present in the right corpus striatum. The inferior aspect of the left lobe of the cerebellum was softened and degenerated. The dura mater and the skull were normal. Microscopic examination of the leptomeninges showed only a lymphocytic infiltration. The small lesions in the cortex showed only cellular debris. In the caudate nucleus and cerebellum there was extensive loss of normal structure, almost no cellular infiltration, and large numbers of cryptococci were present (Figure 1). Many large giant cells were seen in the cerebellar lesion. Each choroid plexus showed giant cells and many cryptococci (Figure 2). Multiple foci of necrosis in the adrenal glands contained great numbers of the fungi. The lungs were normal grossly and microscopically.

Discussion

Cox and Tolhurst[6] summarize the pathological findings of cryptococcosis of the central nervous system as follows:

1) Lymphocytic meningitis, sometimes with the formation of granulomata, with many organisms usually present in the exudate.

2) Multiple small collections of the organisms in the gray matter of the cerebral cortex and basal ganglia.

3) Less commonly, large collections of the organisms or cysts, single or few in number are seen. These apparently are bloodborne and sometimes are associated with no meningeal reaction. (Under this category are included those few lesions which have been exposed surgically from time to time, usually under a diagnosis of space-taking lesion of other origin. It appears to be characteristic of these large cysts that the contents do not drain when the capsule is breached, rather, the mucinous contents remain in situ until spooned out).

4) Granulomata or frank collections of the organisms in the white matter may be seen but are rare.

Our patient showed remarkably little reaction in the meninges and no cryptococci were found. The characteristic cortical and basal

TABLE II—DIFFERENTIAL DIAGNOSIS

Diseases to be differentiated from Cryptococcus meningitis.

Tuberculous meningitis
Encephalitis (varia)
Brain tumor (especially intraventricular)
Brain abscess
Lymphocytic choriomeningitis
Mumps meningitis
Infectious mononucleosis
Luetic meningitis
Monilia meningitis

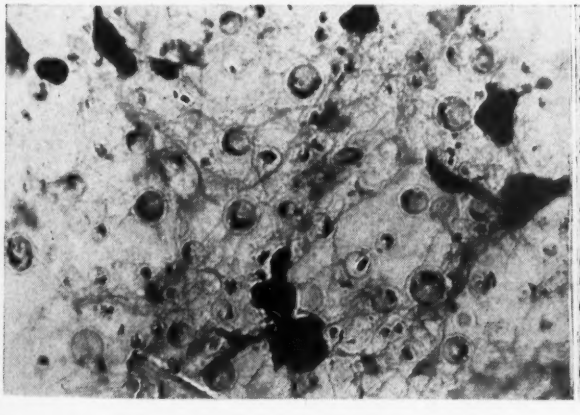

FIGURE 1: Oil immersion appearance of Cryptococcus hominis in lesion of right caudate nucleus.

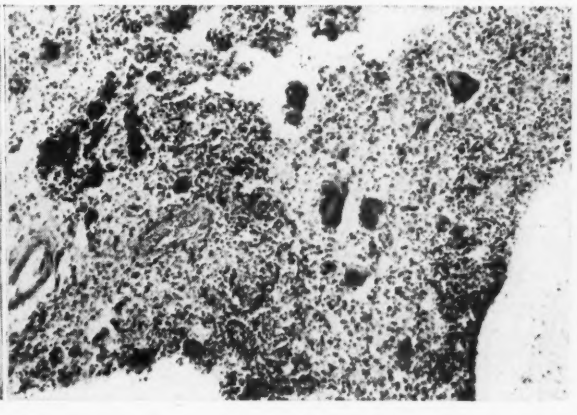

FIGURE 2: Choroid plexus from case of Cryptococcus hominis infection showing giant cells. Most of the small cells in this section are Cryptococci.

ganglion lesions were found plus a larger lesion in the cerebellum. Likewise, the choroid plexus involvement, described in both cases reported from Texas and in others, was noted.

The principal diseases to be covered in the differential diagnosis of cryptococcal meningitis are listed in Table 2. These are mainly conditions which show a predominantly lymphocytic response in the spinal fluid at some stage in their course. The diagnosis is complicated by the fact that in some instances cryptococcal meningitis shows an almost completely polymorphonuclear response, in which cases all the bacterial and viral causes of meningitis must be considered. This problem is still further complicated by the fact that some disease, like coccidioidomycosis, which generally evoke a polymorphonuclear response in the meninges sometimes give a lymphocytic one instead. Also, certain diseases of unknown etiology, such as multiple sclerosis and chiasmatic arachnoiditis, may give rise to a considerable pleocytosis and thereby enter the picture.

In the group of diseases listed in Table 2 the first four were most often confused with cryptococcosis in eighty cases reviewed by Levin[9] with tuberculous meningitis leading all the others. Certain disorders, lymphocytic choriomeningitis and mumps for example, may be suspected from the history. With others such as infectious mononucleosis and syphilis, appropriate laboratory examinations other than the identification of causative organisms, supply the decisive information. However, cryptococcosis can never be diagnosed by exclusion, but only by identification of the cryptococcus itself. Awareness of the possibility of cryptococcosis in any given case will probably lead to its recognition in most instances. Perseverance in the search for the organism may be required. Cudmore and Lisa,[10] in their case, performed spinal punctures 21 times, with negative results both by culture and by animal inoculation, only to find the organisms in the brain at autopsy.

Only a few of the obscure features of this disease may be discussed here. One of these is the variation of virulence in different strains of the fungus. Our patient died within 6 weeks of the onset of symptoms. In contrast Reilly and Artman[11] recently have reported upon a case first described in 1941 by Reeves, Butt, and Hammack. In this instance the patient is still alive after nine years, though blind. A chest sinus which previously had drained viable organisms for years had been closed five years. The spinal fluid was sterile at last report. Once before it had been sterile for a period of two years only to have the cryptococci reappear. Repeated courses of sulfonamides had been administered, but perhaps of most significance is the fact that the strain of organism in her case failed to infect the highly susceptible rat until its virulence had been increased by serial passages.

The mode of initial infection is still unsettled. Most authors believe that the lung is the primary site and certainly pulmonary lesions are found in many cases. These lesions are either gelatinous and contain many organisms or fibrous and granulomatous with but few organisms. Our patient gave a history of "pneumonia" about six months before the onset of her meningitis. At autopsy, however, careful search failed to reveal any pulmonary lesions. That the skin may be the portal of entry is indicated by a case reported by Johns and Attaway[13] in which the disease seems to have originated in a razor cut of the face. The organisms were cultured from this skin lesion. Later the patient died from a cryptococcic meningitis.

Another enigma is the relationship between Hodgkin's disease and cryptococcosis. In nearly 20 per cent of the cases there has been some lymph node enlargement; in very few of these, however, have the organisms been found in the nodes. In many cases, a diagnosis of Hodgkin's disease has been made on biopsy and irradiation has apparently yielded good results, only to have death occur from cryptococcic meningitis a year or more later. The idea has been advanced[6] that Hodgkin's disease may have multiple causes and that the cryptococcus may produce reticulo-endothelial hyperplasia followed by malignant change.

Cryptococcosis has been uniformly fatal in reported cases with the exception of the one patient alive after nine years, another alive after five years, and one or two not traceable.[14] With but few exceptions treatment has seemed to be completely ineffectual. Certain animal experiments, however, give hope for an eventual solution of the problem. Reilly and Artman,[11] using the strain isolated from the patient surviving nine years, found

that after it had been made virulent for rats by serial passage, the administration of sulfadiazine and streptomycin prolonged the life expectancy of infected animals. Opposed to this is the report of Beck and Voyles[15] who found no effect from sulfonamides. Shapiro and Neal[16] with another strain of the fungus, found that acriflavine in a 1:10,000 concentration retarded the growth of the organism. This was the only fungicide which was effective in a concentration low enough to be used in human cases. Horrax is said to have tried acriflavine in one case but the patient was moribund at the time and no conclusions could be drawn.[17] Kuhn[13] reports that broth cultures of the organism, incubated at temperatures of 105° to 107° F. are sterilized in from 6 to 7 days. Furthermore, the rabbit, which does not often succumb to experimental cryptococcal infection, develops a temperature rise from a normal of 103° to 105° F. or more, while the highly susceptible mouse develops no fever. Human patients develop very little fever, which suggests that hyperthermia may be of value. Irradiation has a marked effect upon the lymphoid hyperplasia but none upon the organism itself.[8]

Summary and Conclusions

1) Cryptococcosis is one of the less common and more poorly understood human diseases due to fungi.

2) A case of cryptococcic meningitis, probably the third recorded from Texas, is reported and discussed.

3) The diagnosis of cryptococcosis depends upon keeping the disease in mind, especially in obscure meningitides, and making careful search for the causative organism.

4) Treatment of the disease has thus far been almost completely ineffectual, but experimental work by several investigators with different strains of the organisms gives promise of improved therapeutic methods in the future.

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Electro-Shock Therapy on Patients Complicated by Skeletal Pathology

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Since the introduction of cardiazol by Von Meduna in 1935 to elicit a convulsion of the grand mal type and later on the replacement with the electric current by the Italian psychiatrists, Cerletti and Bini, in 1938, it has been found that it is not always possible to avoid fractures. It can be said that in the past many deserving patients had been denied electro-shock therapy because of skeletal pathology.[1,2] We believe that this has been over-emphasized in the past, and that with the judicious use of curare or seconal sodium i.v. this hazard can be reduced to a minimum.

The fractures are mostly of the compression type involving the bodies of the 4th-8th thoracic vertebra.[3] The fracture rate given in the literature[4] is not uniform. Statistical studies vary from 0.5 per cent to 20 per cent depending upon whether or not routine pre and post shock roentgenograms were used. In order to establish objective means of statistical value it is necessary to x-ray all patients undergoing electro-shock or metrazol therapy before the start of the treatment and after terminating it. It is here where we find the higher rate of all types of fractures.

The pathological skeletal changes which we deem significant for consideration in this series, are fracture occurring coincidentally with previous electro-shock therapy, or those resulting independently of shock treatment irrespective of the functional changes present. In addition, such x-ray changes consistent with marked scoliosis, kyphosis, lordosis, arthritis, osteoporosis, and certain congenital anomalies were believed significant. As shown below, none of the above list, whether of minor or major degree, constituted a contra-indication to electro-convulsive therapy.

It is realized that many psychotic and psychoneurotic patients who have severe bony changes may not be a good risk for convulsive therapy because of a poor prognosis as to their mental state. True, patients should be studied individually and the possibility of recovery should be weighed against the possible complications. G. L. Jones reports, "We have no fixed contra-indications .... We consider each case and its merits, balancing the probability of improvement against the type or severity of the possible complications."

However, in the 135 patients considered for electro-shock therapy at this hospital, we have not found a single patient whose skeletal changes contra-indicated therapy.

The patients in this series are a miscellaneous group of mental patients who had skeletal changes previous to the institution of electro-shock at this hospital. Many of the changes were a result of convulsive therapy given at a previous date in other hospitals.

Procedure

Previous to electro-shock, patients were given either curare or seconal sodium intravenously. For the most part curare was used in patients who did have severe pre-shock skeletal changes. However, in several cases seconal sodium was used, particularly in those patients who were very apprehensive and fearful. The waiting period before the shock and the actions of curare tended to aggravate this anxiety.

In addition, various precautions were taken in holding the patient and in supporting the individual with pillows and sandbags.

It is not necessary for clinical purposes to routinely take pre and post shock films of the vertebrae; however, as long as the procedure was available at this institution, it was carried out. Each patient considered for electro-shock therapy was given pre and post shock films of the thoracic and lumbar vertebrae and sacrum.

Below is a short summary of the patients given electro-shock therapy who had previous skeletal pathology. (See Chart 1).

1. *W.B.*, 35 year old white male with schizophrenia, hebephrenic type. Pre-shock films revealed osteoporosis with anterior wedging of T7,

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8, 9, and 10; roughening; and slight sclerosis of the articular surfaces. He was prepared before each shock with 3.6 cc. curare i.v. and an extra pillow under the neck. Post-shock films, after 25 EST revealed no change in the bony abnormality.

2. *N.B.*, 42 year old white male with schizophrenia and depressive tendencies. Pre-shock films of the vertebrae revealed a compression fracture of T6. Before each EST he was given 3.8 cc. curare i.v. and an extra pillow under his shoulders for support. Post-shock films, after 20 EST revealed no change.

3. *K.D.*, 20 year old white male with schizophrenia hebephrenic type. Pre-shock films showed a fracture of the right transverse process of L3 and L4. Before each EST he was given 3.6-4 grains of seconal sodium i.v. Post-shock films after two courses of 18 EST each revealed the fracture of L3 and L4 to be healed, but there was a new fracture of the right transverse process of L1.

4. *H.L.*, 58 year old white male with involutional melancholia for which he was given two courses of EST (25+13 EST). Pre-shock films revealed a moderate amount of anterior compression of T3, 4, and 5 with lipping of all thoracic and lumbar vertebrae. Before each EST he was given 3.6 cc. of curare i.v.; an extra pillow was also used under his shoulders. Post-shock films revealed no change.

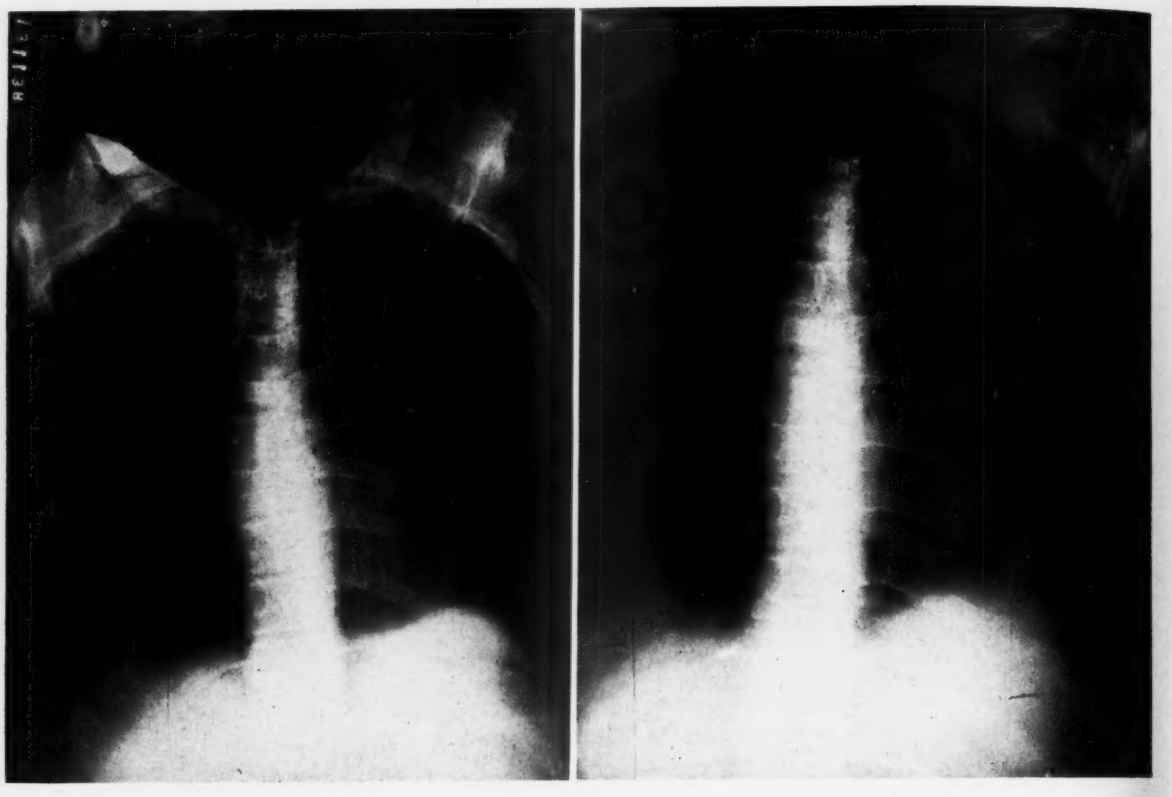
5. *J.S.*, 22 year old white male with schizo-

Patient	*Age*	*EST Given*	*Pre-shock Medication*	*Pre-shock X-ray Findings*	*Post-shock X-ray Findings*
W.B.	35	25	Curare 3.6 cc., i.v.	Osteoporosis—Anterior wedging T7, 8, 9, 10, with sclerosis articular surfaces.	No Change
N.B.	42	20	Curare 3.8 cc., i.v.	Anterior compression fracture T6	No Change
K.D.	20	2 courses 18 each	Seconal Sodium 3.6-4 gr., i.v.	Fracture right transverse process L3 and L4.	L3 and L4 healed. New fracture, right transverse process L1.
H.L.	58	2 courses 25+13	Curare 3.6 cc., i.v.	Anterior compression fracture T3, 4, and 5. Lipping of all thoracic and lumbar vertebrae.	No Change
J.S.	22	28	Curare 3.4-3.6 cc., i.v.	Severe anterior compression fracture T3, 4, and 6. Kyphosis.	No Change
D.M.	57	35	Curare 3.2 cc., i.v.	Lipping of all vertebrae, especially T9 through L5. Bony bridging T11-T12 and T12-L1. Spina bifida occulta L5.	No Change
L.W.	58	16	Seconal Sodium 3.6 grs., i.v.	Severe hyperthrophic changes of all vertebrae with bony bridging T8-T9, T11-T12, L1-L2, and L3-L4. Amputation right hand at wrist.	No Change
J.O.	55	20	Curare 3.6-3.8 cc., i.v.	Minimal hypertrophic changes all vertebrae. Healed fracture middle 1/3 right clavicle with 6 metallic screws in place.	No Change
G.F.	51	18	Curare 3.6-4.0 cc., i.v.	Moderate hypertrophic changes all vertebrae causing bony bridging L3-L4 and T9-T10. Lumbar lordosis. Severe anterior compression T7 and T8.	No Change
O.B.	49	34	Seconal Sodium 3.6 gr., i.v.	Marked lumbar lordosis. Moderately severe hypertrophic changes especially T9, 10, and 11.	No Change
I.D.	45	20	Curare 2.2-2.6 cc., i.v.	Marked anterior compression T5-T7 with sclerotic changes of adjacent articular surfaces.	No Change in old pathology. New compression fracture T12.
F.P.	52	11	Seconal Sodium 3.4-3.6 gr., i.v.	Osteoporosis. Moderate amount of hypertrophic changes, especially lower thoracic and lumbar vertebrae.	No Change
C.P.	21	5	Curare 3.6-3.8 cc., i.v.	Fracture 3rd left metacarpal proximal to metacarpal-phalangeal joint. Sliding bone graft.	Segments in good alignment with evidence of healing present.

phrenia, catatonic type. Pre-shock films revealed severe anterior compression fracture of T3, 4, and 6. As a result of these fractures the patient does have a kyphosis in the thoracic region. He was given 3.4 - 3.6 cc. curare i.v.; one extra pillow was placed under his back in the thoracic region and one under his shoulders. After 28 EST roentgenograms revealed no change. (See Fig. 1).

6. *D.M.*, 57 year old white male with involutional melancholia. Pre-shock films revealed moderately severe lipping of all vertebrae, most marked in T9 through L5 with bony bridging of T11-12, T12-L1. There was an incidental finding of spina bifida occulta of L5. Before each EST he was given 3.2 cc. of curare i.v. Post-shock films after 35 EST revealed no change.

7. *L.W.*, 58 year old white male with involutional melancholia. This patient, as a result of his psychosis, had amputated his right hand at the wrist ten weeks before the institution of electro-shock therapy. Pre-shock films revealed severe lipping and spur formation of the thoracic vertebrae, especially below T4. There was also severe involvement of the lumbar vertebrae with lateral compression of L5. There was bony bridging between T8-9, T11-12, L1-2, L2-3. Beforehand he was given 3.6 grains of seconal sodium i.v., and a 90-120 second interval was allowed before



Before Shock FIGURE 1 After Shock

Plate 1a: Pre-shock x-ray showing scoliosis and severe anterior compression of T3, 4 and 6.

Plate 1b: Post-shock film after twenty-eight EST showing no change from pre-shock films.

Before Shock FIGURE 2 After Shock

Plate 2a: Pre-shock x-ray of right clavicle illustrating old, healed fracture which has been fixed with six metallic screws.

Plate 2b: Post-shock films after twenty EST showing no change from previous film.

shocking the patient. After 16 EST post-shock films revealed no change.

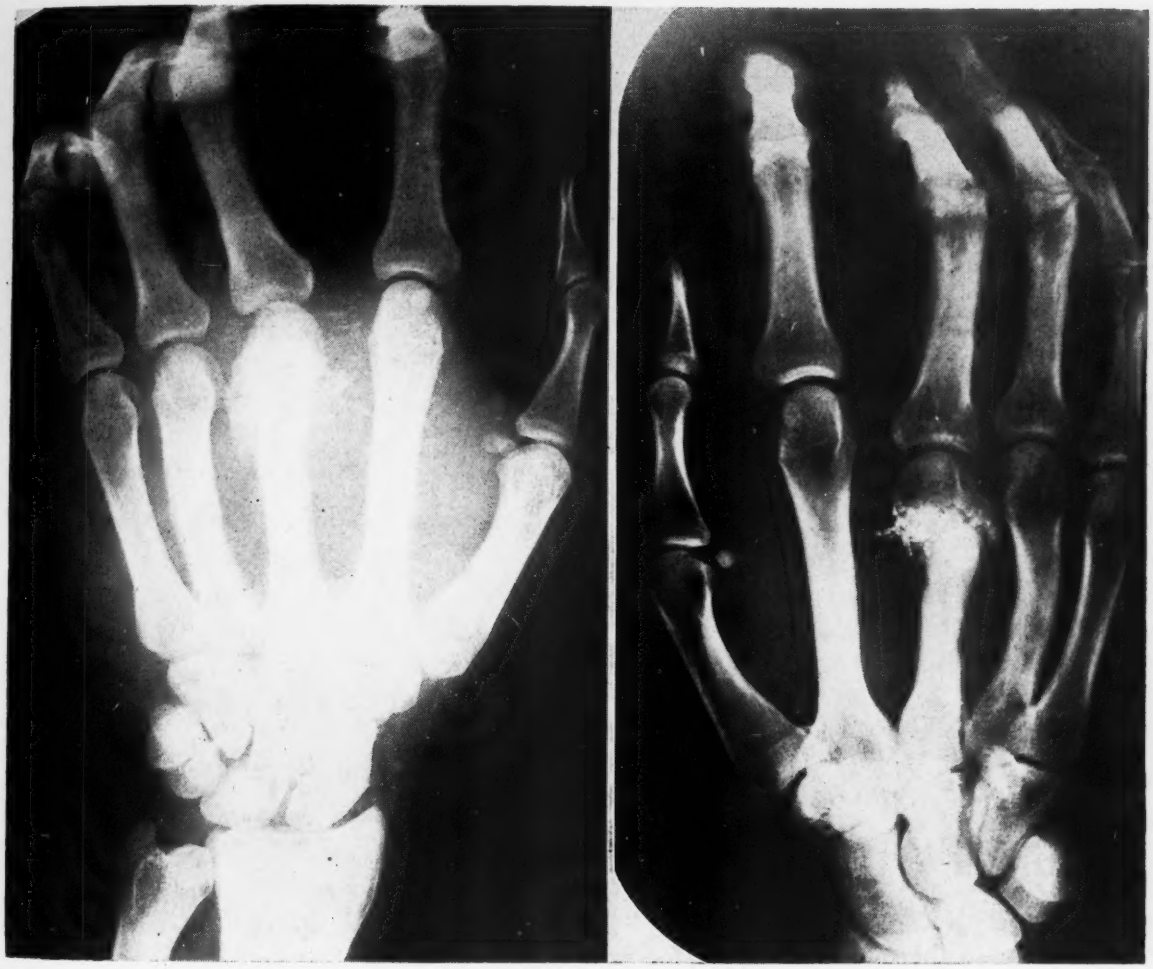
8. *J.O.*, 55 year old white male with involutional melancholia. Pre-shock films of the vertebrae revealed minimal hyperthrophic changes of all vertebrae, most marked in the mid-thoracic region. X-rays of the right clavicle revealed an old fracture of the middle 1/3 of the right clavicle with 6 metallic screws in place. There was a moderate amount of callus formation. Before each EST he was given 3.6-3.8 cc. curare i.v., and two extra pillows were placed under his neck for support. After 20 EST, roentgenograms revealed no change in either the vertebrae or clavicle. (See Fig. 2).

9. *G.F.*, 51 year old white male with involutional melancholia. Pre-shock films revealed a moderate amount of spur formation with a thin, bony bridge between L3-L4. There was also a marked lumbar lordosis with severe compression fracture of T7 and 8. Bony bridging between T9 and 10 was also present. He was prepared with 3.6-4.0 cc. curare i.v., and an extra pillow was used for support of his shoulders. Post-shock films, after 18 EST, revealed no change.

10. *O.B.*, 49 year old white male with schizophrenia and depressive tendencies. Pre-shock films revealed a marked lumbar lordosis and moderately severe lipping of T9, 10, and 11 with sclerotic changes of adjacent articular surfaces. He was given 34 EST, and prepared before each treatment with 3.6 grains of seconal sodium, i.v. Post-shock films showed no change.

11. *I.D.*, 45 year old white male with schizophrenia, hebephrenic type. Pre-shock studies showed a marked anterior compression of T5 and T7 with sclerotic changes of the adjacent articular surfaces. He was given 2.2-2.6 cc. curare i.v. before each of the 20 EST. Post-shock films revealed no change in the old pathology, but did show a recent anterior compression fracture of T12.

12. *F.P.*, 52 year old white male who was given 11 EST for his involutional melancholia. Pre-shock films revealed a moderate amount of



Before Shock FIGURE 3 After Shock

Plate 3a: Pre-shock film of left hand illustrating fracture of the distal head of the third metacarpal.

Plate 3b: Post-shock film after five EST showing satisfactory healing of fracture. A period of seven months has elapsed between films.

hypertrophic changes of the lower thoracic and lumbar vertebrae with generalized osteoporosis. He was prepared with 3.4-3.6 grains of seconal sodium i.v. Post-shock films revealed no change.

13. *C.P.*, 21 year old white male with schizophrenia, catatonic type. Ten weeks before starting EST this patient had accidentally shot himself in the left hand; the bullet shattered the third left metacarpal just proximal to the metacarpal phalangeal joint. Seven weeks prior to treatment a sliding bone graft was done at this hospital to help unite the fractured segments. Pre-shock films revealed a fracture of the third metacarpal with a small amount of callus formation present and many small particles of metallic foreign bodies surrounding the fracture site. He was prepared with 3.6-3.8 cc. curare i.v. After 5 EST, post-shock films revealed the fractures segments in good alignment and a progression in the healing of the fracture site. (See Fig. 3).

It is not the purpose of this paper to compare the efficacy of seconal sodium and curare in preventing complications during electro-shock therapy. This will be done at a later date with a much larger series of patients. We believe the above cases demonstrate that electro-shock can be given safely with the use of seconal or curare in individuals who do have skeletal pathology and who can be helped materially by the electro-shock therapy.

Discussion

Several of the aforementioned patients, especially the ones with involutional melancholia, have been returned to a normal life. Even with skeletal pathology they were given electro-shock therapy, and as a result several useful citizens have been returned to society. These patients previously would not have received electro-shock therapy because of fear of aggravation of the already existing complications. The same applies to the group of schizophrenics; however, even though several of them have not improved sufficiently to be discharged from the hospital, the electro-shock therapy has made them much better hospital patients.

From the experiences we have had, hypertrophic or traumatic arthritis and compression fractures of the thoracic or lumbar vertebrae are not a contra-indication to convulsive therapy. The patient with a fractured clavicle and the patient with the fractured metacarpal were not disturbed by electro-shock therapy. Of course there should not be a policy of disregarding all skeletal changes, but if the chance of recovery outweighs the possibility of complications, the patient certainly deserves the benefit of electro-shock therapy.

B. H. Gotterfeld[5] has reported patients to whom electro-shock therapy was safely administered and who had various pre-shock skeletal changes, i.e. fractured vertebrae, osteoporosis, fracture of the femur, and osteoarthritis.

It is becoming increasingly evident that much skeletal pathology no longer constitutes a contra-indication to electro-shock therapy with the current use of curare or seconal sodium.

Summary

1. It has been shown that certain skeletal changes in patients who are in need of convulsive therapy are not a contra-indication to electro-shock therapy. Each patient should be considered individually, and the risk of sustaining the skeletal complication weighed against the seriousness of the mental condition.

2. Thirteen patients have been treated with a total of 306 treatments with no changes in the original pathology.

3. We believe, therefore, that individuals can be treated safely with electro-shock therapy in spite of skeletal pathology.

Authors Note: Curare used was Squibbs Intocostrin 1 cc. 20 units purified extract of chondendron tomentosum assayed in rabbits by the so-called "Head-Drop Crossover" method.

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*Psychiatry in Clinical Medicine**

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The trends of human affairs seem to be cyclic. This is particularly true of the theories and practice of medicine. As long ago as 500 B. C., Alcmaeon propounded the doctrine that "health depends on harmony, disease upon discord of the elements within the body." Spinoza, almost 2,200 years later, rediscovered that "mind and body are the same thing, now under the attribute of thought, now under the attribute of extension." It took 200 more years and an age of science to separate mind from body in medical thought by stimulating the creation of a host of disciplines, each concerned almost exclusively with the separate parts or bits of separate parts. The effect of this attitude, in the paraphrased words of Suttie,[1] was a flight from the patient as a whole person since it assumed that changes in parts were necessarily the cause of abnormal behavior.

There is now evidence that the cycle has changed and that the zenith of isolated medical specialization and the psychologic insularism which characterizes it are again passing. Psychiatry, perhaps more actively than other disciplines, has participated in the new trend toward a collective approach to the problems of disease. The spreading influence of the concept of the patient as a whole person is being reflected in the earlier recognition of psychiatric conditions. Likewise, such persons generally are benefiting from the medical practitioner's closer understanding of the meaning of the psychosomatic process. The result is that medical diagnosis is coming to more nearly state the actual functional and structural change which is the dynamic pattern of the patient's disability. As seems to be typical of the history of medical progress, however, an equal development in the field of therapy is laggard.

In general medical disease, the gaps between observation, diagnosis and effective therapy have always been great. In psychiatric disease, they are almost unbridgeable. The cost of time required to observe accurately all the relevant manifestations of most psychiatric problems is considerable. Then, too, psychiatric diagnosis depends upon more than a summation of observations descriptive of abnormal behavior. To be a helpful guide for therapy, the diagnosis must be a dynamic formulation of the processes which are responsible for the observed behavior of each individual patient. Effective treatment of deviant behavior requires not only that the patient be told what is his problem but also that the "telling" be done in a manner and at a rate which will permit the patient to assimilate this information emotionally and intellectually. It is an indispensable part of treatment that the patient be helped finally to make a new and more stable adjustment in keeping with a realistic assessment of his capacities. It is for these reasons that effective psychotherapy is costly in time and difficult to learn.

Then, too, there is a dearth of psychiatrists and the present and potential burden of patients is enormous. These patients and their care, therefore, have to be the responsibility of the medical public generally and not merely the charge of the specialists in psychiatry. This responsibility carries beyond mere recognition or even diagnosis and referral to a specialist. It implies that every physician and not the psychiatrist alone has an obligation, insofar as he is able to discharge it, to make his relations with the patient psychotherapeutic. On the other hand, it is not proposed or intended that each physician should equip himself to practice definitive psychotherapy. It was Freud[2] who pointed out that "there are many ways and means of psychotherapy and all methods are good which produce the aim of therapy." Definitive psychotherapy, however, is the task of a trained specialist. Just as there are gradations of treatment in the practice of internal medicine and surgery, so in psychiatry there are treatments which fall within the purview of the non-specialist. These lay in the de-

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veloping borderlands of a more inclusive clinical medicine. Practically, this therapeutic approach requires that there be a conscious recognition and a planned use of the psychosocial forces which exist in the physician's relation to his patient.

The social institution of medicine confers upon its practitioners an authority which the sociologist, Weber,[3] called "charismatic." This means that, because they are held to possess special knowledge and healing talents, physicians as a group have paid to them a certain psychosocial deference. In the social hierarchy this has prestige value. In addition, the prestige which is part of charisma has the perquisite of authority.

A more obvious example of this is seen in primitive cultures where the shaman, the witch-doctor and the medicine man possess an authority which is derived from the same source. The difference is that this is their sole stock in trade, as it were; nevertheless, to it a number of "cures" can be ascribed. A child endows its parents with a homologous authority. It derives much of its actual and symbolic potency from the same emotional source. This basic effect is the touchstone which often makes the technics of suggestion and persuasion therapeutic. However, like all technics of divination or symbols of augury, suggestion and persuasion are unpredictable devices. On the whole they have been proved fallible by modern psychotherapeutic investigation. It is of significance though that from the time of Aesculapius the magic of this kind of medicine has been used both advertently and inadvertently by practitioners of the healing arts. The office of the modern physician is a place where such affects operate willy-nilly, sometimes to the consternation of the physician trained in the more tangible sciences.

If the physician is mindful of this authoritarian legacy, he can often employ it knowingly to therapeutic advantage. With it he can seek and slowly gain the confidence of his patient, for, as Lord Chatham said, "Confidence is a plant of slow growth in a trusting bosom." The physician's easiest access to the confidence of his patients requires, above all, that he exercise sparingly and with discretion this charismatic authority.

The process of psychosocial growth is largely exhortative and repressive; coercion of one or another sort is used to accomplish conformity. In the process, many persons become sensitized to authoritarianism, however dilute its administration. The hypersensitivity to authority which personifies the life adjustment of these persons makes it mandatory that treatment, if it is to be wholly beneficial, not create a paradox by encouraging more symptoms as a defense against treatment by fiat. It is axiomatic in the treatment of the patient as a person that the physician be permissive: Permissive in the sense that the patient feels free to speak his mind, that for at least the duration of the interview he feel relieved of the necessity of submitting passively to the pressure of the ethical "ought," "must," "supposed to" and "have to" which have stifled his expressions and given rise to his sense of frustration with its unvoiced resentment and its physical symptoms. This kind of permission carries with it the implication of newer attitudes which recognize the intrinsic independence, individuality and the worth of the person. Permission of this sort is the hallmark of mature interpersonal relationships.

As medical students, physicians-in-training are taught routinely to *take* a history. This is often an arbitrary as well as capriciously, selective process and to a greater or lesser degree all arbitrary demands are sensed as authoritarian edicts. The response which is elicited is variable, for it depends upon a complex of a number of factors. For example, not always is compliance to be taken at its face value. Frequently, the resentment and the resistance which are generated are absent superficially only because they have "gone underground." In the instance of the routine *taking* of a medical history it frequently is this tactic of cryptic defense which ultimately defeats the aim of therapy. Too often a lip-service alone is paid to granting the patient freedom of expression by giving him the dubious privilege of stating his chief complaint in his own words.

The perfunctory recital of replies to exhausting direct questions not only fails to nourish the growth of the patient's confidence but also obscures significant psychosocial data. Apropos of this in clinical practice, it is not uncommon to find suggestible patients doubly burdened by the addition to their basic illness of what Sir Arthur Hurst

termed "iatrogenic symptoms," "physician-induced complaints" acquired from one or more well-intended but poorly directed history *"takings."* Obviously, these instances are illustrative of a double-edged weapon of charismatic authority.

Although the permission to *give* a history obligates the physician and deprives him of what he frequently takes to be initiative, it is not entirely a gratuitous gesture. On the superficial, descriptive level, it is informative; at the same time, on an affective level, it can be therapeutic. If the patient is allowed to be spontaneous, the physician has a unique opportunity for much-needed and detailed observation. Essentially, an interview organized this way is a miniature social situation, one in which there is opportunity for the patient to re-experience emotionally important life experiences. These he projects on the physician. In return, he receives, and reacts to, various responses by the physician. The interplay which takes place has an affective basis which is conducive to learning. Since the most effective learning requires participation, it is imperative that the patient feel free to participate. In this setting, one can observe the personality of the patient in action. His attributes can be witnessed. The way in which he functions as well as his scale of values can be seen. The situations and people in his life can be judged as he sees them to be significant. It should be stressed that only in the light of their full significance to the patient do situations and people assume effective importance. Once they have acquired this personal meaning, only a personal accounting can assay their value. There is no universal value. The meaning and the significance of events as they are experienced are highly complex and personal psychosomatic phenomena for which the patient alone can supply a common denominator. The unique, chance events of life lend peculiarly personal color to everyday happenings. These constitute the fabric of experience by forming a pattern of the symbols which give meaning to existence. The symbolic pattern which is accumulated during growth and development remains individual and private until the possessor grants the privilege of sharing it.

There are prerequisites for, as well as limitations to, the use of the permissive approach to patients' problems. The physician has to be aware of his own affective commitments. He must be convinced that his charismatic qualities have limitations. He must know that not always is doing or saying something a better tactic than inactivity or silence. He must appreciate that everything which transpires between him and his patient is grist for a psychotherapeutic mill. This approach to the patient as a whole person is analogous to the objective and unbiased inquiry of the physical scientists, for it is what William James called a "common sense conception."

There are many patients seen in the practice of clinical medicine whose disabilities are reflective of minor maladjustments. The opportunity to "talk it over" with a sympathetic listener is all that is needed to help them re-establish compensation. The belittlement one hears of this "minor" psychotherapy is the pronouncement of practitioners who are more concerned with methods than they are with patients. They need to be reminded of Francis Peabody's words: "The secret of the care of the patient is in caring for the patient."[4]

Psychiatry has many contributions to make to the more inclusive practice of clinical medicine; the more important ones are less concerned with matters of technic and method than they are with the physician's attitude and approach. Since disease or injury disturbs the adjustment of the entire organism, scientific treatment cannot stop short of including within its scope the whole person.

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Psychodynamic Patterns and their Implications in the Neuropsychic Entities

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Experiences leave their impression upon the organism, which, composed of parts mutually dependent, is vulnerable to definite effects thus produced upon it.

Changes resulting from disturbed regulation over the highest psychic centers, may vary from general deficiency of behavior to complete escape of emotional control with consequent alterations demonstrable in unchecked motor and sensory expressions.

As definite psychic and physical situations may precipitate certain symptom patterns, we will concern ourselves with the dynamic reactions encountered in the psychosomatic disease entities considered in the light of our conformation to the modernized concept of diagnostic identification.

The individual, when occupied with an inner self-protective struggle, may become apprehensive, agitated, confused or intolerant to stimuli ranging from sounds to bright illumination, and for his disquietude he is unable to formulate a conscious motivation. These are symbolisms of an unconscious representation of undirected stimulation of his emotional animation reflected in uncontrolled passive sudden releases. These general symptoms appear in a more or less definite syndrome pattern in the variously classified neuropsychic entities.

The fundamental and essential element in the determination of therapeutic procedure presupposes the proper diagnostication of the specific neurosis to be dealt with. From the latter viewpoint the various neuropsychic disorders with their psychodynamic patterns are considered in this discourse.

Anxiety Reaction States

Emotional reaction is considered pathologic, when its severity, or the period of its continuance is disproportionate to a given situation. Fear and frustration are the most outstanding precipitants of this psychogenic instability. The patient may present symptomatology referable to particular bodily organs, or the predominant fixation may exist in the psychic sphere. In the majority of instances the fear element, either subjective or objective (real), dominates the clinical picture. When the apprehension is *subjective* to the individual he may assign either no known cause therefor, or his fear may be the reaction to an unwarranted dread. When the fear has a manifest actual reason for its existence we consider it to be real or *objective*. In the latter situation something has actually transpired in the individual's environment, e.g. threats to his safety or frustration to his life's goal—and the fear is sensed in consequence thereof. Here the demonstrable disturbances may disclose such symptoms as pallor, palpitation, asthmatic or other respiratory signs, hyperhidrosis, alimentary disorders, urino-genital, cephalic or other complaints ascribable to hyper-excitation of the central nervous system. These fear symptoms may be considered as typifying a paralysis of the internal (mobile) organs and when present in anxiety reaction states, are fears internally engendered through psychological motivation. They take place practically without the individual's awareness and on examination no pathology is demonstrable. Such fear is a defense reaction—a phylogenetic flight and a retreat. Continuous fear representative of cumulative misadaptation and of long standing emotional distress, laden with the previously cited mechanisms, justifies the diagnosis of the condition as that of a fixed neurosis—*chronic anxiety reaction.*

Dissociative Reaction States

In a large number of cases we encounter individuals who present functional nervous disturbances which may reach critical proportions. The confusion of these patients, by disruption of regularity of function, may become so dominating that the suddenness of the disturbing impact may find such individuals either totally transfixed or wandering about without thought or purpose.

Where the precipitant of the emotional violence has not been overwhelmingly con-

suming, the unconsciously rejected material may become diverted into such functional aberrations as dissociation of consciousness, during the attack of which, any acts thus performed by such individuals are not subsequently remembered by them. Other demonstrations may include symptomatic deafness, blindness, disorders of taste, paresthesias and anaesthesias of bodily parts, speech disturbances, spasms, automatism, angio-neurotic manifestations. These clinical pictures, which may vary from complete fugues to the less severe subjective symptomatology above exemplified, are untenable medically and fit into no organic pattern.

Great care must be exercised in the diagnostic evaluation of this neurosis, lest it become confused with the personality transformation rooted in a disjunction from reality. In the latter, the intellectual detachment is founded upon a deeper personality split which may range from schizoid to frank schizophrenic. Moreover, as the patient is observed, the causality of the emotional impulsion will become more apparent and the characteristics of the patient's symptomatologic presentation will lend themselves to the specific diagnostication of the disorder—neurotic or psychotic.

These episodic outbreaks are usually traceable to a neuropathic heredity and the symptomatology will commonly put in its individual appearance after some physical or emotional shock. This dissociative reaction state is an exemplification of this specific functional nervous disorder and is met with as a component of the Conversion Group.

Phobic Reaction State

Phobia, as a constituent feature of associated anxiety is a definite dread suffered where suppression of unpleasant and undesired experiences becomes no longer possible. Although the individual appreciates the absurdity of his pre-occupation with them, he is nevertheless unable to shake off these subconsciously repressed ideas. Typical of the fears confronting such patients are: fears of crowds, dirt, animals, open places, vermin, fires, water, high places, germs, storms, sharp instruments, etc. In these situations the anxiety becomes separated from a particular incident in the individual's usual conduct of his routine existence and is substituted by a thought association emblematic of the definite abstract dread. Thus the phobic reaction is an unconscious substitutive discharge and a defense through which the organism instinctually attempts to avoid the situation or the perception of that which created the anxiety. In respect of these fears, some of which have been cited, the individual is able to regulate his mental uneasiness as long as he is able to prevent contact with the disturbing factor productive of the fear.

The dreaded personalities or circumstances actuate a definite though imperceptible implication for the patient. In a more strained aspect they represent either an enticement for a resisted emotional drive, or a penalty for an unconscious stimulus, or association of both. The avenues chosen by the displacement can be established from the individual's history of the warded-off stimuli and in this manner the meaning of the phobias can be understood. As an example, the dread of open places is a protective mechanism against exhibitionism or scoptophilia. Such a fear may be in relation to the making of a public appearance, or merely to that of being present within a crowd.

Conversion Reaction

In this neuropsychic entity, which is essentially hysteric, some long-standing disagreeable situation is being emotionally rejected from consciousness and is being substituted by some altered (converted) form of symptomatic behavior. It is a demonstration of a distorted expression of repressed instinctual demands, the peculiarity of the specific altered behavior being rooted in the patient's long-standing tension situation. The anxiety which lies at the base of this neurosis is converted into a psychosomatic disability and with it conscious anxiety is no longer present.

Thus, representative of a converted phenomenon and indicative of an effort at adjustment of the conflict, solution of the struggle is unconsciously attempted by a compromise having its foundation on a psychic as well as a somatic level. Among the reactions which may be encountered some of the typical forms are cited: somnabulism, amnesia, fugues, mutism, aphonia, disturbances of smell, sight and hearing, paralyses, sensory loss, pains, dyskinesias.

An essential feature of this condition is that in respect of structural or primary physiological defects, the somatic complaints do not harmonize with the disorders alleged or endured by these patients. Since the underlying purpose of their psychological symptoms is to afford them an escape from an unbearable situation, their pre-occupying symptoms must, at once, be both present and disabling. For this secondary gain, either on the material or psychic level, illness is often used beneficially by such patient by projecting his psychic struggle onto the physical range of control.

Somatization Reaction

Impairment of bodily functions may occur in the nature of physiological changes in performance, by the misuse of an actively operating organ. Definite psychic situations eventuating in emotional retreat will produce organ-neurotic symptoms. These are the consequence of the psychic barrier, which latter impedes the efficient discharge of an individual's stimulation to mental activity. The warded-off drives and excitations which constantly seek for an outlet for the individual's natural and unconscious needs eventually are productive of lasting corporeal changes. The patient's unusual behavior (e.g. the development of a habit) originally intended to check some internal psychic strain, eventuates into the derangement of the physical organisms, neither anticipated nor desired, either consciously or unconsciously. Here the stimulated and unpremeditated reaction may influence bodily efficiency without concomitant neuropsychic disorder.

As bodily organs function without mental awareness, so does a significant element of psychic individuality operate on the unconscious plane. The latter is a dominant power in the effectiveness of the personality. Accordingly, chronic emotional stress may give rise to physiologic alterations which account to a considerable degree, for the symptomatic expressions referable to both organs and neuropsychic entities.

The anxieties may take on the form of apprehension, dispiritedness and mental stress with the customary physiological supplements. Sometimes the anxieties may take shape in aggressiveness against some external situation and become expressed in self-inflicted harm, offenses against law, or alcoholic debauches. Often the revelation may be via the autonomic system, as psychic expressions of somatization neuroses, the patient expressing his maladaptation through the medium of the organ symptoms. Such unconscious choice is presumably predicated upon the various organic constitutional factors of the individual. On the other hand, it is well to bear in mind that affective disturbances may well do violence to such body defenses as are concerned with the regulation of the internal secretions and/or of the vegetative functions, with the resultant neuropsychic somatization. Biologically and psychologically considered, the individual engages in a struggle against his environment and its influences.

The train of illnesses in which the bodily organs act as reflectors and are the physiological components of the emotional maladaptations of the individual, merits deliberation. The most frequently encountered groups of emotional manifestations employing bodily symptoms as psychological analogues, may now be opportunely cited:

a) *Cardiovascular* reactions (pseudoanginal pains, palpitation, dyspnoea, adynamia, tachycardia). There is an evident correlation between an individual's emotional obstruction and the frequency of his circulatory responsiveness. This is so in view of the fact that the circulatory system is closed in contrast with the digestive and respiratory arrangement where intake and discharge takes place.

b) *Gastro-intestinal* reactions (pyrosis, dyspepsia, eructation, anorexia, constipation, diarrhoea, irritable colon, mucous colitis). The individual, in his desire to take in needed affection, expresses this requirement through the office of the stomach and employs the organ both as an emotional and nutritional recipient with assumption that he has accomplished his need through his digestive function.

c) *Algias* (arthralgia, myalgia, cephalalgia).

d) *Allergic* release expressions (emotional urticarias, asthmatic reactions, certain hay fever reactions, rhinorrheas, certain angioneurotic edemas). The emotional urticarias are the expressions of allergic responses to certain hormonal mobilization. They are of

sudden onset, caused by a frustrating experience coincident upon an anxiety-stirring hapless impetus. In his anxiety the patient reflects his attempt to retire from an undesired reality situation and such individual is frequently an exhibitionist who functions on this level because of his narcissistic personality which needs protective assurance.

e) *Skin* manifestations (dermographia, neurodermatoses, hyperhidrosis).

f) *Urinogenital* reactions (menstrual alterations, frigidity, impotence, perverse sexuality, dysuria, frequency, emotional enuresis).

g) *Visual disturbance* reactions (micropsia, myopia).

Asthenic Reaction

The outstanding effect encountered in this disorder is general adynamia based on bodily complaints referable to either gastro-intestinal tract, urino-genital sphere and an inability to concentrate. Frequently these complaints are the concomitants of quantitative and qualitative dysfunction of the ductless glands.

The reactions are therefore to be considered as somatic remnants of a former neurosis, the inception of which was based upon the functional alterations within the ductless apparatus.

To clarify the ingredients of this disorder, the following distinguishing points merit note. Characteristic of this fatigue type of reaction is the fact that it gets worse as the day wears on. This is a point of precise differentiation from the depression type of reaction. In the latter we see an individual who is enervated in the morning and becomes livelier as the day wears on. The asthenic, unlike the patient who expresses the hypochondriacal personality, confines his complaint to a single particular organ or part (e.g., heart, stomach, etc.). The hypochondriac on the other hand, busies himself with concern over a motley of symptoms referable to his sundry bodily structures. The asthenic individual is unable to concentrate since his energies are utilized for some pre-occupation of which he is not aware. This mental discord represents a defensive struggle which consumes energies that of necessity have been turned aside from conscious rational tasks. The result of this action is the production of the reaction of fatigue. The fatigued individual is then constantly submerged in his exhaustion and gives thought to functions which are ordinarily automatic as his heart action, breathing, walking, etc. Unnatural attention to the latter, if lasting, wears such patient down to the point of inability to be of practical use to himself.

It is well to keep in mind that the manner in which external stimuli are reacted to, depends upon the hormonal state of the individual's organism. This endocrine function gives rise to the unconscious natural impulses which activate the personality. Whether due to outside stimuli or to inhibitions internalized, as in asthenic reaction or other neuroses, any alteration in the endocrinological chemistry influences the physical expressions of the individual.

Obsessive—Compulsive Reaction

The characteristic of this psychodynamic disorder is a deeply rooted form of anxiety wherein the individual is hampered by thoughts which, while recognized and indulged in, are unwanted and repeat themselves. They are not to be confused with the manifold thought trends allocable to the disorders of perception.

This reaction may be best discussed under the two following major categories, viz: a) Obsessive, and b) Compulsive.

a) The *Obsessive* variety is encountered in individuals whose ego is compelled to *think* of certain situations, which though undesired, must be thus given way to, or else anxiety of impending danger threatens. These sufferers are beset with phobias, the ideas of which persistently and constantly torment them. These notions are best recognized as emotional impressions representing disguised fears, with the conception shifting onto a harmless or irrelevant thought. The latter is predicated upon the hypothesis of the unconscious and operates as a substitute for otherwise undesired ideas repressed by the superego from the consciousness. As such, an undesired thought then becomes recognized and though primarily useless, functions as the subject of habitual rumination. The substitutive phenomenon thus operates as a defense reaction by replacing some painful problem or doubt by a comparatively innocuous one and to this extent forestalls a breakdown of repression.

Illustrative of these obsessive *thoughts,* some general examples follow: persistence of pre-occupation with certain tunes, certain words, certain ideas, varied specific fears, etc.

b) Just as the manifestations of obsessions are substitutive phenomena translated into tolerated ideas, so are *Compulsive* manifestations equally translated substituted *acts.* These phenomena, which, as acts, become more readily demonstrable, are expressions of the same unconscious fears translated into substitutive repetitious acts.

The impulsive ritualistic performance which frequently follows an obsessive thought is unconnected in mental conception or suggestion to the remainder of the individual's intellectual operations. It is an adjustment satisfaction of immature cravings.

Behind this compulsion is found deep-seated destructive hate, sadism, even impulse to kill. For this sadistic feeling and reaction of guilt, these sufferers will carry out self-inflicted punishments or other ceremonials, as rituals of expiation. Illustrative of these acts, some general examples follow: simple childhood tics as rotation of the head, blinking, respiratory tics as singultus, sneezing and clearing of the throat. The more elaborate movements may include such compulsions as lighting matches one after another, touching fence posts, walking on the edge of the sidewalk or stepping on or over the cracks, avoidance of brushing against people, etc.

The compulsive and repetitive attributes of the simpler types of recurrent and involuntary tics serve to set them apart from the more involved and detailed character of the automatic and systemically functioning movements, which latter occur in disorders founded upon organic etiology. The most salient diagnostic indicator of this functional unbalance is the fact that the compulsive neurotic recognizes the absurdity of his impulsive acts, knows he does not act logically, but cannot admit this illogic in the light of his emotions rich in mental dynamics.

Hypochondriacal Reaction

The psychodynamic pattern in this category reveals an individual with an intensive preoccupation with imagined visceral disturbances, who is in constant search for cure of his fancied ailments. He expresses his concern over his bodily dysfunctions with a varying degree of insight. The latter may even recede to the level of suicidal determinations. Rather than fasten his driving force to external situations he dedicates his energies to his bodily organization to the exclusion of all else. This condition may persist sufficiently long and sufficiently severe enough to reach the precursor stage of the psychoses, particularly of the schizophrenic reaction type.

The sufferer is unable to obtain relief despite any demonstration of lack of organic disease. He is a narcissistic and seclusive person who, while not avowedly melancholic nor possessed of suicidal proclivities, persists in his supreme anguish because of some fantastic notion that he is afflicted with a tenacious bodily ailment.

Not infrequently, various neuroses, particularly the anxiety, depressive and compulsive types, may include persistent complaints of bodily dysfunctions with constant fixation of attention upon them. Hence differentiation from these neuroses is obviously essential. The lines of boundary between the symptoms ascribable to hypochondriasis and some of the other functional neuroses (q.v.) are not as clear cut as the more readily identifiable symptomatology ascribable to the psychoses.

The hypochondriacal state should be set apart from the periodical depressed phases of the manic depressive psychoses. When insight is unclouded in relation to the fantastic nature of the suffering feared by the individual, he manifests an asthenic reaction pattern. If, however, he persists in his declarations that he is plagued by an actual illness, we are warranted in diagnosticating the neurosis as hypochondriasis. This may be attended by anxiety features from which a distinction should be made (q.v.). Enfin, hypochondriasis is characterized by a rigid visionary pre-occupation with bodily parts extending for the most part within the oral, nasal and genital spheres, coupled with a circumscribed degree of mental discernment.

Depressive Reaction

Reproach for some repressed guilt through emotional depression is the precise mechanism through which the patient eases this

form of anxiety. The psychogenic reaction is usually set off by some presently occurring condition such as bereavement, illness, loss of position, birth of siblings, serious domestic upheavals, etc.

The reaction takes shape as sadness, the severity of which bears a direct relationship to the extent of the individual's tendencies directed toward the matter of his bereavement and toward the incidents relative to the depression. This is a situational reaction which differs from the more severe variety, in that it does not exhibit the dispiritedness, hyperactivity and flightiness of the psychotically (endogenous) depressed. In the latter there is present a considerable degree of narcissistic regression—the sufferer having failed to retain his object relationships and gone back into a stage of development where no objects were yet an actuality. This activates in him a sensation of an empty existence in the midst of a barren world. As to the exciting cause for the depressed state, (either endogenous or reactive) we may reasonably presume that, not unlike the sudden exhibitions which mark the hysteric, an analogous pre-existing precipitating unconscious factor bears responsibility for the depressive onset.

Conclusion

These psychodynamics, their patterns and their implications recognized as conforming to our present day concepts, have been here discussed purely from the viewpoint of consideration of the clinical entities which characterize the general group prefaced by the comprehensive designation of psychoneuroses. These divers states reflect psychic conflicts where no organic disabilities exist and where the disturbance of idea formulation is accompanied by varied but not overwhelming alteration in the individual's objective deportment.

No attempt has been made in this discussion to overlap the context by inclusion therein of such disorders as those of character, intoxications, intelligence, or of altered brain function (either with or without structural alteration). To delimit the varied syndromes extant as psychophysical dynamics and to discuss the respective neuropsychic entities therewith concerned, has been the scope of this discourse.

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Chronic Rheumatic Fever with Rheumatic Heart Disease

Psychosomatic Conference — Cincinnati General Hospital*

MILTON ROSENBAUM, M.D., Editor
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Medical History

(Dr. A Brust, Dept. of Medicine)

D. H., a 24 year old white married woman has had repeated bouts of acute rheumatic fever since the age of 4. The first attack of acute rheumatic fever followed an illness thought to be typhoid. The diagnosis of rheumatic valvulitis (mitral stenosis) was made within 6 months of the first joint manifestations. At age 7 she suffered an acute exacerbation of the rheumatic fever and was treated in a convalescent home for 2½ years. Since age 13 she has had repeated hospitalization for acute exacerbations of the rheumatic fever. At age 19 (1943) the patient had an uncomplicated, except for vomiting, pregnancy and delivery but sometime later developed a mild pelvic inflammatory disease. Since 1943 she has been followed in the cardiac clinic between periods of hospitalization. The patient has a constant tachycardia with periods of low grade fever even during the time she is asymptomatic. The fever and tachycardia are present when the sedimentation rate is normal.

In August 1947 she was notified that her husband, whom she hadn't seen for 3 years, was coming home, the news apparently caused marked anxiety and within 3 weeks she had an exacerbation of the rheumatic fever. At this time streptococcus viridans were obtained fro mthe throat culture. Following discharge she was relatively asymptomatic until the present exacerbation of rheumatic fever, beginning December 1947. On this admission the patient revealed a disturbance in her level of consciousness which was difficult to evaluate, especially in view of a fever of 104° F.

This patient has shown a variable sensitivity to salicylates which made it impossible to maintain this therapy. Sulfadiazene has been given prophylactically but was discontinued because of a tendency to a neutropenia. There has never been conclusive evidence of congestive heart failure but an attempt was made to digitalize the patient in August 1947, which, however was discontinued because of nausea and vomiting immediately following administration of the drug.

It is of interest that although the patient has complained of aching in her joints, there has never been any objective evidence of joint involvement. Fatigability and nervousness have been constant complaints for many years.

Family History: One brother, two cousins, an aunt and possibly her half-brother have rheumatic fever. The patient says that two brothers and one sister are quite "nervous".

Past History: Patient gives history of frequent sore throats. Perforated appendix with appendectomy at age 13. No sequela.

Physical Examination: B.P. 128/70, P-122, R-20, T-102° F. The patient is a pallid young woman who appears chronically ill. Examination reveals the presence of auricular fibrillation, an enlarged heart with mitral stenosis and insufficiency. There is no evidence of congestive failure. The spleen is not enlarged and there are no petechia.

Laboratory Studies: WBC-11,300; blood cultures negative; RBC-4,52; Kahn negative; sedimentation rate 35-41 m.m./hr. (upper limits of normal 20 m.m.).

X-ray and Fluoroscopy: Cardiac enlargement with mitral configuration.

Electrocardiogram: Prolonged A.V. conduction; evidence of myocardial damage.

Course in Hospital: Patient has tolerated low doses of salicylates with mild nausea and occasional vomiting. The patient was digitalized with digitoxin and the fibrillation controlled. At present she is afebrile, the sedimentation rate has decreased and there has

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been marked relief of her symptoms. However, the emotional problems are still present and give rise to marked anxiety, emotional lability and insomnia.

Psychiatric History

(Dr. B. Matthews, Dept. of Psychiatry)

The patient is an attractive, pleasant girl of average intelligence, who does not appear seriously ill. Her only complaint was of having to remain in bed. She had no idea that emotional difficulties could be influencing her disease; however, she soon spoke of current difficulties which were causing much tension. She has been married for 7 years to a man two years her senior and they have a boy aged 4. Her husband entered the Merchant Marine in 1943 and he was home last August for the first time in 3 years. After two weeks he left again and he has not been back since. He rarely writes and sends her no money, but in spite of this apparent neglect, the patient resents any criticism of him. The patient and her son live with her husband's parents which bothers her. She says, "It hurts my feelings. The worst thing is living off his people. They're good as gold, but it hurts my pride to live off people." When asked why she didn't force her husband to support her, she said "I'm not going to beg. I don't like asking anybody for anything." These problems have precipitated transient periods of moodiness and on one occasion the patient told her mother she was going to starve herself to death.

The patient gave a history of having headaches since the age of 11 or 12. These headaches are described as a dull-aching occipital pain and as a throbbing frontal headache. Both types may occur simultaneously and as frequently as twice weekly. In her teens she had some nausea and vomiting with the headaches but no visual disturbances were noted. Recently these headaches have been precipitated by worry over her husband. When acutely ill, the patient is content to be in the hospital, since she finds it difficult to be bedridden and cared for by her mother-in-law, who is also ill. She has lived with her in-laws for three years and says that she didn't think she could have lived with them for that long. However, one has the impression that there is a closer attachment to the mother-in-law than to her mother.

The patient was born near Cincinnati of Protestant parents, the third of 5 children, and also has a young half-brother, age 11. The two older siblings are brothers, the two younger are a brother and sister and they are all spaced at approximately 2-year intervals. The patient is not aware of her mother having other pregnancies. When the patient was 3, her father was killed in an accident. At age 4 she had the first attack of rheumatic fever and at age 5 she was in a local hospital for several months where a diagnosis of rheumatic heart disease with mitral stenosis was established. It was noted that she was poorly developed, underweight, pale and tired easily. Two notes from the chart give some idea as to her personality at that time: "The child has been crying and thrashing around in bed for the last 2¼ hours. This started after one of her whims was not satisfied." "For the last two months, at intervals of 5 or 6 days, the child would have periods of depression lasting 12 to 24 hours. At these times she would sit quietly, refuse to talk and ate little. Later she appears happy, will play, answer questions, eat heartily, etc." The patient's two-year old brother developed rheumatic fever at the same time she did; however, he suffered no residual damage and later was accepted in the army.

She states that the children were close to mother who was quite strict and frequently punished the children, including the patient. She recalls relatives asking her mother how she could be so stern with an ill child, but feels her mother was justified since the sole care of 5 children was quite a burden. The family finances were meager and they needed relief aid to get along. The patient states she always got along well with her siblings.

At age 7 she was sent to a convalescent home where she remained for 2½ years. On admission there she was undernourished, scabetic and so "nervous" that chorea was thought to be a possibility. The patient recalls being somewhat of a behavior problem because of homesickness. However, the records show that early in her stay she made a satisfactory adjustment but later became sullen and uncooperative. Her reluctance to remain in bed was very marked and once she was very angry at the doctors for ordering strict bed rest after she had had a period of limited activity. During these periods she was said

to have been "morbid" and would bite her nails constantly. No other neurotic traits elicited in the history. The patient stated, with evident embarrassment, that she had only finished the 7th grade in school. After leaving the convalescent hospital, she was over two years behind her age group and she lost interest, finally quitting school at age 16. She was considered a tomboy because her chief interest was in sports. "I was always getting into mischief. That's why I was switched a lot." There is no history of accidents or injuries.

Her mother remarried when the patient was 12, but the step-father drank to excess, which led to a divorce when the patient was 15. The patient remained at home until 17 when she married. She was very much in love with him but for some reason felt, "very dissatisfied about something" for a period after her marriage. This feeling caused her to want to move frequently and so they moved from one house to another about 6 times in the 3 years prior to the time her husband joined the Merchant Marine. She feels her dissatisfaction may have been due to the fact that her husband was working nights and that she didn't see much of him. She remembers a severe exacerbation of her rheumatic fever after about 8 or 9 months of marriage. However, the patient denied specific difficulties with her husband at that time and said he was always kind and considerate. In spite of her disability, the patient worked hard around the house.

The patient had been warned about the dangers to her of having a child but she wanted a baby. She took no contraceptive precautions and became pregnant after 3 years of marriage. All through her pregnancy she was afraid she would die and vomited throughout the period. Her husband, who had been away, returned when the baby was 5 days old but had to leave again within 24 hours. The next day the patient had an uterine hemorrhage which the doctor said was due to "nervous strain". The patient remained in bed for the next 3 months.

When asked when her husband was last home she said, "He was last home in August," then with a smile, "then I got sick and had to come here while he was home." The patient says she was shocked at his sudden arrival after 3 years absence, "I couldn't breathe right for 2 or 3 days; I couldn't eat." The husband seemed more affectionate at this time. During the next two weeks, before she went to the hospital, they had intercourse once or twice a night but she denied feeling that her husband was too demanding. She states that their sexual relations have always been good and denied any feeling of sexual frustration during their long separation. She felt badly about having to enter the hospital so soon after her husband's return. "Seems like every time I plan something I get sick. For example, every time I get a job I get sick." She has had two jobs; one lasting 5 days, the other two weeks. Both positions involved light work but they were too much for her, in spite of the fact that she commonly does hard, heavy work around the house.

Apparently the patient has become quite religious in the past two years; attends church twice weekly, has given up cosmetics, etc. She states that during this period she really hasn't felt angry at anyone. She relates this change to the advent of a new pastor, of whom she is very fond, at her church. However, about the same time she had learned that her next oldest brother, who was her favorite, had lost an arm in the war. He is now home and wears a hook prosthesis. His face is also disfigured due to wounds. The patient has infrequent dreams and is unable to remember any of them. Her earliest memory, age 5, is of being in a crib in the hospital and her mother coming to visit her, at a time when she had not been eating well.

The ward personnel find her a model patient and the clinic physicians consider her extremely cooperative, keeping appointments even in the most inclement weather.

Interview with Patient

(Dr. M. Rosenbaum)

Dr. Rosenbaum: How are you feeling today, Mrs. H.?

Patient: All right but I feel a little nervous now.

R. That's understandable. Are there other things or situations that make you nervous?

P. Sometimes if I feel like I'm getting real sick I get nervous. I get scared because I think I have to leave home and come to the hospital.

R. Haven't they always taken good care of you here?

P. Yes, but I'd rather be home; anybody would.

R. Where is your home?

P. I live with my mother-in-law.

R. Just the two of you?
P. No, there is my father-in-law, sister-in-law and my little boy.
R. Do you have your own room?
P. No, I share a room with my sister-in-law.
R. Who takes care of you when you get sick?
P. My mother-in law. She takes good care of me.
R. How is your little boy?
P. He's all right.
R. What does your husband do?
P. He's in the Merchant Marine.
R. Is he here now, or is he away?
P. As far as I know he's in New York.
R. Doesn't he ever write to you?
P. No, he doesn't write to anyone. He hasn't written since October.
R. How do you account for that?
P. I don't know, he says he isn't allowed to write.
R. Do you get worried or concerned about that?
P. Sure—naturally.
R. Have you made any attempt to find out what's going on?
P. No. Just one time, I think about last June.
R. What happened then?
P. Well, I just didn't go through with it.
R. You didn't go through with what?
P. I was going to try and get some money.
R. What were you going to do about getting the money?
P. I don't know.
R. Have you any brothers or sisters?
P. I have four brothers and one sister. There are two brothers older, I'm next. Then my sister, a brother and then I have a half-brother.
R. How did you children get along as youngsters?
P. All right. Once in awhile we'd have a "round" and then make up.
R. Who did you have most of your "rounds" with?
P. I guess my oldest brother. I think he tried to be a father to us, he just wanted us to mind mother.
R. Was he much older than you?
P. He was four years older.
R. When you were a little girl, did you prefer to play with boys or girls?
P. Oh, I liked outdoor sports. I liked swimming, baseball and things like that.
R. You played baseball? Did you play with boys or girls?
P. Boys and girls both—we used to team up.
R. Were you pretty good at baseball?
P. I was always pretty good at it.
R. You haven't done any athletics recently have you?
P. No, I haven't played baseball for 3 years.
R. Who did you play baseball with after you grew up?
P. Well, when our church would have a picnic, they'd have a baseball game and I'd play. I couldn't refuse.
R. Did you play with dolls as a child?
P. Well, I played with dolls until I was about 10. Then I liked baseball and swimming better.
R. Did the doctors know you were playing baseball?
P. No.
R. What do you think they would have said had they found out about it?
P. They'd have probably told me not to. The doctors said I shouldn't do stuff like that, or run up and down steps.
R. Well, do you run up and down steps?
P. I did, but not lately. I live on the second floor and I know I run up sometimes.
R. If you had your choice of running or walking, which would you prefer?
P. Running.
R. That's odd. How do you explain that?
P. I don't know—I've done it since I was a kid. I was too active, I guess.
R. Why did you quit playing baseball three years ago?
P. I don't know. I just started not feeling too good. I was playing and got sick.
R. When did you go swimming last?
P. About 4 years ago.
R. Were you a good swimmer?
P. I swim better under water than I can on top of water but not too far, I can't hold my breath long.
R. Now that you don't swim or play baseball, what do you do for exercise?
P. I don't do much of anything.
R. Do you do work around the house?
P. I do the housework.
R. Do you like to cook?
P. Pretty good but I prefer the other work.
R. What is the other work?
P. Sweeping and moving furniture.
R. You prefer to do that?
P. Yes, I would, it seems downright silly but I would. I kind of thought I'd like to be an interior decorator or something like that. Maybe a moving man.
R. When did you get sick, Mrs. H.?
P. When I was four.
R. I understand you were at a convalescent home for about 2½ years. They didn't let you exercise a lot did they?
P. No.
R. How did you like that?
P. Oh well, whenever the nurse wasn't looking we jumped around on the beds. We had a gym room but I wasn't allowed to do much and they wouldn't let me climb the stairs.
R. How did you feel about that?
P. I didn't like it. They'd give me books to read and things like that.
R. When you went home and started to school, did you continue to see a doctor?
P. Yes.
R. Did he tell you to take it easy?
P. Well, they told me not to play hard but my sister and all the rest did, so I did too. You don't just like to sit home on a doorstep and stay put.
R. That was difficult. Did you have anything else to do? Did you have dolls or little girls

to play with?
P. Oh, I could read or sew, but all of the girls would team up and play baseball and I would too.
R. What about your brother who had rheumatic fever?
P. They didn't tell him to take it easy. He used to play baseball and hunt and fish.
R. Did you ever take piano lessons?
P. When I was a kid I wanted to but we never had a piano.
R. How old were you when you were married?
P. I was 17.
R. How long did you go with your husband?
P. About two years.
R. What did the doctors say about that?
P. I didn't ask them what they thought about it. They never did ask me and I didn't tell them.
R. What did they tell you about having children after you were married?
P. They told me definitely not to have any.
R. Who contributes to your support now?
P. My mother-in-law and father-in-law.
R. They're quite good to you, aren't they?
P. They're swell to me. Anything I want they do for me.
R. Your husband must make a fairly decent living in the Merchant Marine?
P. As far as I know. I don't know anything about him.
R. How is it that you haven't made him support you? After all he's your husband?
P. Don't ask me. I don't know.
R. There are laws to protect mothers and children?
P. I know that.
R. When did you come to the hospital this time?
P. New Year's Eve.
R. Were you upset about anything about that time?
P. No.
R. Do you sleep well?
P. I don't sleep so good sometimes. I sleep better in the hospital than I do at home. There I keep worrying about my little boy getting out from under the covers and I wake up a lot to cover him up.
R. What would happen if he did become uncovered?
P. I don't know. I just figured he might get a cold.
R. Has he been in good health?
P. Yes, he's been in pretty good shape. He used to have the croup when he was little.
R. How many times a night do you wake up to see if he's all right?
P. About 2 or 3 times. I pull his bed over by mine.
R. Do you dream much?
P. I don't dream often. I've had a few but I can't remember what they were.
R. Have you ever had frightening dreams either as a little girl, or when you grew up?
P. Not that I can remember.
R. What's the first thing you remember in your entire life?
P. I remember going to Kentucky and staying down there about two weeks with my grandmother. That was just before I got sick.
R. Do you like her quite a bit? Do you like to visit her?
P. Yes.
R. Do you visit her a great deal?
P. As much as I can.
R. Are you going home soon?
P. I hope so.
R. What are you going to do when you go home? What sort of regime will you follow?
P. I don't know, the same thing I guess. I'll just go home, that's all.
R. Are you going to do any more furniture moving?
P. No.

Discussion with Students

(Dr. M. Rosenbaum)

Dr. Rosenbaum: This is an interesting case that stresses certain factors in relation to chronic illness which are not often discussed here. As we listened, what was the outstanding repetitive theme of the patient's behavior?

Student: Her unwillingness to accept the fact that she is sick. She will not realize that she must limit her activity.

R.: I believe that is the essence of the case as brought out in the history and the interview. How would you explain this reaction?

Student: She seems to identify with her next oldest brother. She likes the same activities he does. He is the only one of the siblings that she speaks of.

R.: What do you think the various physicians have advised her to do in regard to her activity?

Student: In general they probably told her to take it easy and she has done exactly the opposite.

R.: If this girl were your patient and you knew she had rheumatic heart disease, what sort of program would you plan for her?

Student: The usual advice is absolute bed rest until signs of activity of the rheumatic fever have subsided and then a gradually increasing amount of activity to the maximum obtainable for the individual patient.

R.: When you speak of the maximum activity possible, what factors must you consider?

Student: You have to consider the amount of stress the heart can tolerate without producing further damage. I believe that is the most important thing.

R.: I think you have outlined the standard procedure for determining permissable activity, but I think we must consider the patient's need for activity. Does activity have any other meaning to the patient?

Student: We should try and direct her activity in channels that would not be violent and yet satisfy her needs.

R.: That's right. We must not only consider the efficiency of her heart but also her personality. One could judge these personality factors and needs by a consideration of her family and group situations. With proper attention to these problems, this patient might have become a little girl who would have liked to play with dolls, sew, cook, etc. She might have been able to obtain prestige from making good cookies when she was 6 or 7, rather than gaining it by being a good baseball player. Who would you need to work with in order to utilize these techniques?

Student: That would necessitate working with the mother.

R.: That is correct. It is probable that it wasn't thought of in this case, or it may have been that the mother wouldn't allow the patient to identify with her in that respect. One would have had to reinforce the patient's feminine drives. It may be that the Social Agencies taking care of the family should have made it possible for this girl to take piano lessons. She could have gained prestige and competed in a way that would not damage her heart.

Until recent years the general approach has been to make chronic invalids out of children with rheumatic heart disease. The doctors have been doing what they think is best for their patients and incidentally, what is best for themselves. It takes a great deal of courage to go counter to what has been taught and written in textbooks, but that is what doctors had to do who first allowed these children increasing activity. One could handle 100 children under a regime of increased activity and it might well be that 99 would do well in respect to their rheumatic heart disease as well as be emotionally healthy, but if one were to develop acute congestive failure, it would be a blow to our pride and security as physicians. One must be extremely secure in the knowledge of having helped a great number of children to accept a disaster such as that.

I am sure that this girl received the best possible medical care but we, with all justification, could raise the question, "how much care did she get in terms of handling her emotional needs?" The patient had two older brothers to compete with, one who had rheumatic fever but was not restricted in activity like herself, a fact which must have been difficult for her to understand. One cannot say, "you have to be a nice little girl and rest." The physician must go out of his way to recognize a patient's emotional needs and endeavor to establish a situation where some of the needs can be realized. This patient failed to respond to the management of the physicians and as a result is defiant, continually denying her disability and trying to prove she is as healthy as her brothers.

There is another aspect of such defiant behavior, especially in a situation where disobedience of the doctor's advice may be disastrous. Would you say this girl has any self destructive impulses?

Student: Yes, I had that impression.

R.: Why do people do things that might cause injury or result in death?

Student: This may occur frequently in a depression resulting from feelings of guilt.

R.: Patients may punish themselves as an atonement for guilt. This punishment may take the form of a neurotic disturbance, or if they have an illness, they may disregard proper therapy; e.g., a diabetic who refuses to take insulin. We do not know if this is an important mechanism in this case but it is one that must be kept in mind. There may be another factor that is of importance here, do you have any idea of its nature?

Student: It may have to do with lack of affection and possible rejection when she was a child.

R.: You're on the right track. What was her first memory?

Student: Being taken to her grandmother's home in Kentucky. She liked to go there. Apparently it was a happy experience.

R.: Apparently the patient felt the grandmother was a better mother figure. This memory has to do with a wish to be cared for, but sometimes people develop vigorous independent attitudes because of a need to deny these feelings of dependency. This may take the form of a denial of illness. We have seen how she tends to deny dependncy as related

to her husband. This woman hasn't done anything about her husband's desertion because her sense of pride won't allow her to demand support from him.

Do you think these personality maladjustments have any relationship to this patient's chronic illness?

Student: I think we have learned that many factors may alter the course of a chronic illness.

R.: We have learned nothing of the etiology of rheumatic fever, however, some of the causes of these frequent exacerbations undoubtedly have to do with the emotional problems we have been discussing. As far as we know there are no specific dynamic psychogenic factors operating in rheumatic fever, but we have discussed some important aspects in the handling of patients with this disease. We must realize that cardiac disease not only causes anxiety in the patient but also in the physician, which in turn increases the anxiety of the patient. We must learn to weigh these factors and guard our anxiety so that we will not further injure the patient. Our concepts of handling convalescence and chronic illness have changed a great deal in recent years. Adequate management must tend to reduce anxiety and emotional dependency in order to avoid the "chronic invalid" reaction. All of us have certain conflicts about dependency and chronic illness, we may resent patients who are lying in bed and being waited upon while we are working; however, we may over react to this emotion and over protect the patient. In any event we have discovered the danger of keeping patients in bed too long. Dr. Wolf, have you any suggestions from the viewpoint of a pediatrician?

Dr. Richard Wolf: I have little to add except that we must stress this new concept in our teaching. The reaction that this patient has shown since childhood is not unusual in pediatric practice. This patient must have had a difficult time at the convalescent home and it is amazing that she was able to last 2½ years. In those days activity was greatly restricted as a part of the therapy. However, I hope that now many of us will have a little more courage in dealing with the problem of convalescence.

Dr. Henry Lederer: I think we should review the whole problem of the prescription of absolute bed rest, particularly when it is prescribed in lieu of any other specific treatment, in terms of its emotional significance to the individual patient. In this young woman we have shown the dangers of challenging the defenses built up against dependency which results in anxiety and inappropriate behavior. Another factor that is not uncommon is the revival of guilt feelings over masturbatory impulses in patients who are put to bed for therapeutic reasons. This reaction may be seen in patients past middle age and may reasonably have been a factor in this patient's unwillingness to accept bed rest as a child.

R.: Another aspect of management that should be discussed is our habit of giving standard therapeutic prescriptions of any type, without regard to the patient's needs. One may see obese patients with coronary artery disease who have been ordered to reduce at any cost. Much anxiety may result from enforced adherence to a strenuous diet when we neglect to investigate why a patient developed obesity. If the patient derives great gratification from eating we may precipitate great tension, resentment and frustration by demanding that he adhere to a strict diet. The physiological concomitants of these emotions may put more of a strain on his heart than the added weight. We must devise some substitute gratification or attack the problem of weight reduction in a cautious manner.

Dr. Matthews: In regard to the patient presented today, we might wonder how much her activity was restricted by being in bed. It was seen in the early records that she was so hyperactive a diagnosis of chorea was entertained at one time. She may have expended more energy in bed than she would have under a regime of regulated activity.

R.: That is an important point and brings to mind our management of the disturbed patient in general. We have seen, all too frequently, delirious patients controlled by the use of shackles rather than sedation. In patients with cardio-vascular disease such treatment may result in death. The energy output involved in struggling against shackles is much greater than if the patient was left alone. It is better to use chemical sedation than physical restraints.

Dr. Matthews: It was of great interest to see the reaction of the house staff to my interviewing the patient. They would say, "why is a psychiatrist interested in that girl?

She has had rheumatic fever for 20 years and has no manifestations of nervous disease. She doesn't need a psychiatrist."

R.: That is not an unusual reaction but it is hoped that our psychosomatic teaching program may give all of us new insight into the problem. It would be unusual for a medical house officer to ask for psychiatric consultation on such a well-behaved patient. We have been through the same problem with school children. Ten years ago no teacher would have asked for a psychiatric consultation on little Susie who was very quiet and never opened her mouth, but who may have been having one fantasy after another.

Dr. Eugene B. Ferris: In regard to the future management of this patient, we must concentrate on what we can do now, not what could have been done many years ago. There are two lines of approach; one, trying to give her insight into her problem of dependency and help her to accept her illness, which I believe would not be successful; secondly, to cease trying to restrict her in terms of activity. If we were to be more liberal in relation to allowable activity she might not over react. In my experience, patients who are given more freedom may not do as much as when they are restricted. Recently studies have been made on the effect of anxiety on cardiac output, which is relevant to this patient who suffers fro mcardiac disease. It has been shown that anxiety will produce as great, if not greater effect on cardiac output as will exercise. In fact if a person is extremely anxious, exercise may decrease the cardiac output. It is possible that if this patient is fighting against restricted activity, and feeling guilty when she does exercise, her heart may be working harder than if we gave her freedom to do as she pleases.

R.: I would agree with that. If we were to allow her more freedom the chances are she might not desire so much activity. In addition we could relieve her of much resentment, frustration and guilt.

Dr. Ferris: In a patient who has a chronic disease that tends to be fatal, we have to keep the patient functioning as long as possible. We can't expect to be magicians but must accept the situation and do the best we can.

We must also think of socio-economic factors in our management of patients with rheumatic fever. Dr. T. Duckett Jones believes that one of the most important causes of rheumatic fever may be related to poor living conditions. In many families several children may be sleeping together in the same room. When one child develops a streptococcus infection of the throat, they may all contact the infection and subsequently all develop rheumatic fever after repeated episodes of this type. Segregation of the children is found to be an important factor in preventing the recurrence of rheumatic fever.

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